

REMARKS

[01] The present amendment adds pages 6-11 to the application. The addition does not constitute new matter as it merely makes explicit material that was already incorporated by reference. More specifically, by virtue of the co-filed preliminary amendment, the present application incorporates by reference U.S. Patent Application 09/514,975, (now issued as U.S. Patent 6,309,875) which is essentially the same as the present application except that pages 6-11 were not inadvertently omitted. The addition of pages 6-11 overcomes the objections presented in Items 1, 2a, and 2b of the most-recent Office Action.

[02] The present amendment makes editorial corrections to pages 1, 4, and 14. More specifically, an errant global replace of “cap” to “cover” inadvertently affected the words “capable”, “capillary”, and “captured”. The present amendment restores these words to their proper form.

[03] Original Claims 8-15 have been amended to address the objection to Claim 11 of Item 3 and the indefiniteness rejections of Item 5. In addition, Claim 8 has been amended to overcome the rejections for anticipation and obviousness. Specifically, none of the cited references explicitly disclose or inherently involve centrifugal forces in excess of 1G.

[04] New Claims 16-25 have been added. New independent Claim 16 roughly corresponds to original Claim 9, while new independent Claim 20 roughly corresponds to original Claim 12. Due to this correspondence, the original rejections may have some applicability to the new claims. As explained below, rejections based on Trulson were in error as applied to the original claims and should not be reasserted against the new claims.

[05] The original claims were rejected as being either anticipated by U.S. Patent No. 6,258,593 to Trulson et al., "Trulson" herein, or as obvious over a combination of references including Trulson. These rejections were in error and would be in error if applied to the new claims as these rejections are based on a mis-interpretation of Trulson.

[06] The Office Action erroneously equates Trulson's use of the term "circulate" with "rotating" as used in the claims. The claims require that a reaction cell containing sample fluid be rotated. "Circulate" as used in Trulson simply denotes that a fluid is made to flow in a circuitous path. This usage is the same as in "blood can circulate through the human body". In that case, the blood flows in a circuitous manner independently of any rotation by the body itself. In Trulson, the fact that fluid urged by pumping to flow in a circuitous manner through a cavity does not imply that the cavity itself is being rotated. To the extent that any rejections based on Trulson relied on this misinterpretation of "circulate" those rejections should be withdrawn and should not be applied to the new claims.

#### [07] SUPPLEMENTARY REMARKS

[08] The notice of incomplete response asserts that the foregoing remarks were not fully responsive to the Office Action of May 29, 2003. These supplementary remarks are intended to address the concerns raised in the notice. However, Applicant maintains the notice is in error, as the original remarks address all the actual rejections in the Office Action. Specifically, items 1-3 of the notice are addressed by the last two sentences of paragraph [03] of the original remarks. Item 3 is further addressed by the last sentence of paragraph [06] of the original remarks. Items 4-6 relate to provisional and not actual rejections. Applicant is not required to respond to non-actual rejections. Accordingly, it was improper to consider the amendment not fully responsive as all actual rejections were addressed in a manner specifically pointing out the differences between the claimed invention and the cited art.

[09] The foregoing notwithstanding, Applicant accepts responsibility for the failure to communicate as clearly as possible. Accordingly, the response is represented below in more detailed form.

[10] Item 1.

[11] Item 1 of the notice asserts that the rejections for anticipation by Smith were not addressed by the original remarks. The rejections for anticipation by Smith were applied to original Claims 8-13 and 15. These claims were all amended in Amendment A to overcome the rejection for anticipation by Smith. Specifically, Claim 8, and thus dependent claims 9-13 and 15, as amended include a limitation of a centrifugal force in excess of 1G. Smith does not disclose this limitation; hence Smith cannot anticipate the invention as defined by amended Claims 8-13 and 15. Thus, the rejection for anticipation by Smith should be withdrawn.

[12] Item 2

[13] Item 2 of the notice asserts that the rejections for anticipation by Schembri were not addressed by the original remarks. Claim 8 has been amended to overcome this rejection. Specifically, Claim 8, as amended, includes a limitation of a centrifugal force in excess of 1G. Schembri does not disclose this limitation; hence Schembri cannot anticipate the Claimed invention. Thus, the rejection for anticipation by Schembri should be withdrawn.

[14] Item 3

[15] Item 3 of the notice asserts that the rejections for obviousness in view of Trulson and Holmes and, depending on the claim, Comba and Klein. These obviousness rejections were applied to original Claims 8-15. In view of the amendment to Claim 8, this ground of rejection is inapplicable, since neither Trulson nor Holmes discloses the 1G limitation included in amended Claim 8. In addition, this obviousness rejections fail because they rely on a misinterpretation of Trulson. Specifically, “rotation” as used in Claim 8 does not read on “circulate” as used by Trulson. The obviousness rejections of Claims 9-15 fall for the same reasons—the addition of the 1G limitation and the misreading of Trulson. For these two reasons, the obviousness rejections should be withdrawn.

[16] Item 4.

Item 4 of the notice asserts that the original remarks did not address a previous obviousness-type double-patenting rejection over co-pending application 09/792,169. In fact, this was not an actual rejection but a provisional rejection for statutory double patenting. This rejection is overcome by the amendment that adds the 1G limitation to all claims. In addition, since the rejection is not an actual rejection, and may never mature into an actual rejection, it is not necessary to overcome it, especially as there is no indication that the 09/792,169 will ever be allowed.

Item 5

Item 5 of the notice asserts that the original remarks did not address a previous obviousness-type double-patenting rejection over co-pending application 09/900,294. This rejection is overcome by the amendment that adds the 1G limitation to all claims. In addition, since this is not an actual rejection, it is not necessary to overcome it at this time.

Item 6

Item 6 of the notice asserts that the original remarks did not address a previous obviousness-type double-patenting rejection over co-pending application 09/971,867. This rejection is overcome by the amendment that adds the 1G limitation to all claims. In addition, since this is not an actual rejection, it is not necessary to overcome it at this time.

CONCLUSION

All objections and rejections have been overcome by amendment. Accordingly, it is respectfully submitted that the present application is in condition for allowance, which allowance is respectfully requested.

Respectfully submitted

  
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Clifton L. Anderson  
Reg. No. 30,989  
(408) 245-0820

Replacement paragraph for Page 1, lines 18-26.

Hybridization reactions between surface-bound molecular probes and target molecules in a sample liquid may be used to detect the presence of particular biomaterials including biopolymers and the like. The surface-bound probes may be oligonucleotides, peptides, polypeptides, proteins, antibodies or other molecules capable of reacting with target molecules in solution. Such reactions form the basis for many of the methods and devices used in the new field of genomics to probe nucleic acid sequences for novel genes, gene fragments, gene variants and mutations.

Replacement paragraph for Page 4, lines 3-15.

In U.S. Patent No. 4,849,340 to Oberhardt, an alternative means is disclosed for mixing components in a fluid during an assay performed in an enclosed chamber. Oberhardt discloses an apparatus comprising a base, an overlay and a cover which when combined define a sample well, a channel, and a reaction space. Fluids introduced into the sample well flow by capillary action to the reaction space. Mixing of fluids within the reaction space is effected using mechanical or electromechanical means to create forced convection currents. Again, large sample volumes are required (100 to 200  $\mu$ l) because of the need to maintain a gap between the base and the cover during mixing. Additionally, the method relies on capillary action to promote fluid flow, and mixing may thus be slow and incomplete, particularly when viscous reagents are used.

Replacement paragraph for Page 14, lines 4-23.

As noted above, the cover preferably has a lip along the perimeter of the cover bordering a recessed portion that comprises the major portion of the area of the inner face of the cover. Applying pressure to the outer face of the cover directly above the perimeter lip is required to form the tight seal between the cover and the substrate. Any means that presses the lip of the cover securely to the substrate is suitable. Such pressure may be applied evenly by, for example, clamps, a press, or by capturing the substrate and cover within a two-part rigid frame and compressing the two together to supply an even pressure to the cover and substrate. If desired, the peripheral lip of the cover may be modified to provide for an improved seal; for example, one or more continuous ridges can be incorporated into the lip so that the pressure supplied to the cover is higher at those locations and preferentially causes them to compress. In any of these embodiments, the reaction cell may be re-used, as the peripheral seal is temporary and the fastening means may be removed when desired. Thus, the reaction cell may be readily disassembled after use, cleaned, and re-assembled (with alternate components, such as a different substrate, if desired) so that some or all of the components of the reaction cell may be re-used.